



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

The error would have been avoided if Dr. Horn had seen a long series of this insect at that time.

***Brenthus peninsularis* Horn.**

This species is erroneously reported to breed in gumbo limpa. During the month of May I took this insect at flowers at San Filipe, Lower California, and I was not able to discover their breeding place. *Brenthus anchorago* came out in August and I examined hundreds of this latter species, but never found one *B. peninsularis* mixed up with them.

Class I, HEXAPODA.

Order IV, DIPTERA.

**THE LARVA OF CULEX PUNCTOR KIRBY, WITH
NOTES ON AN ALLIED FORM.**

BY HARRISON G. DYAR, A.M., PH.D.,

WASHINGTON, D. C.

(PLATE IX.)

Culex punctor Kirby, is one of those single-brooded, early developing mosquitoes that would seem especially adapted to an arctic climate. Three-fourths of the year is spent in the egg state. The eggs, lying in marshy places frozen up over winter, hatch as soon as the ice has melted in the spring. The larval stages are passed in about three weeks, even in very cold water and the adults emerge immediately. They may fly possibly for six weeks, when the eggs being laid, they die and the species disappears, apparently, for the season. With these habits the insect ought to occur throughout the arctic circle. I met with it in Canada in the mountains of eastern British Columbia (Proc. Ent. Soc. Wash., VI, 39, 1904). A single fully grown larva, apparently the last one of a brood, was found on May 31. It soon pupated and the imago occurred on June 4. Other mosquitoes were flying at this time over the swamp where the larva was found and were supposed to be of the same species. On being imprisoned, they were fed on sugar and water. After being in confinement for two weeks, a female deposited eggs on the surface of the water. They were kept in water

all the summer and following winter and hatched as soon as the ice melted the following spring. The eggs were laid singly. They are peculiar, being very wide and angularly shaped. They float at first, but soon sink or become adherent to objects at the side of the pool or floating on it.

On rearing the eggs that had hibernated, I was surprised to find that the larvæ differed markedly from *puncator* and were obviously a distinct species, the imagoes of which I had confounded with *puncator*. I have referred to the egg as that of *puncator* (Proc. Ent. Soc. Wash., VI, 39, 1904); this reference should be cancelled. The mature form I have in only very slender material. The original female from which the eggs were obtained is badly rubbed and a male bred by Dr. Dimmock at Springfield, Mass., from an identical larva, is broken. Mr. Coquillett has kindly examined the specimens and does not detect any difference; but he considers the material too poor to form an opinion on. I am inclined to designate this form provisionally as *Culex trichurus*, in order that it may be referred to. The name is given in allusion to the unusually hairy air tube of the larva, since it is the only species of the short-tubed group that has more than a single hair tuft.

EARLY STAGES OF CULEX TRICHURUS DYAR.

Egg. (Plate IX, Fig. 2.)—Thickly fusiform, the ends well tapered, one side more bulging than the other. Black, the surface very finely granular shagreened all over, no sculpturing, no mucilage. Laid loosely, floating, but sinking at the first touch or adhering by surface tension to marginal objects. Length 0.6 mm., width 0.3 mm.

Stage I.—Head rounded, flattened, normal; antennæ moderate, equal, with small spinules, terminal digits and tuft of hair at the middle of the joint, all darkly infuscated. Body moderate, equal, submoniliform, normal; hairs moderate, becoming gradually less posteriorly. Air tube moderate, about three times as long as wide, the basal two thirds colorless, the tip infuscated (Plate IX, Fig. 3); pecten of two rows of flat, dentate plates with long marginal spine (Plate IX, Fig. 4), the single hair arising well within the pecten and nearly at the middle of the tube. Lateral comb of the eighth abdominal segment a row of obscurely digitately spined teeth with central longer spine (Plate IX, Fig. 5) in a single row, parallel, approximate, six, seven or eight in number. Anal segment with a small, rounded quadrate dorsal plate, darkly infuscated; terminal hairs and four anal processes normal; no ventral brush. The body is pigmented in brown over the dorsal region.

Stage II.—Head rounded, flattened, normal, darkly infuscated, the antennæ moderate, uniform, with normal terminal spines and hairs, sparsely spinulose, darkly colored throughout; a small tuft of two hairs at basal third. Body normal, darkly pigmented dorsally; air tube short, about twice as long as wide, abruptly tapered

(Plate IX, Fig. 6), infuscated throughout, the last three pecten teeth stouter and more remotely placed than the basal ones, the single hair tuft arising before the middle of the tube; pecten teeth (Plate IX, Fig. 7) are stout spines with two short basal branches. A double row of small hair tufts on the dorsal aspect of the tube. Lateral comb of the eighth segment consists of seven to nine single, thorn-shaped teeth with finely pectinated bases, arranged in an irregular transverse row (Plate IX, Fig. 8). Anal segment with a small dorsal plate and terminal tuft; ventral brush present, small, arising from a barred area, which is preceded along the ventral line of the segment by small, but distinct hairs. Anal processes four, moderate, not inflated, without conspicuous tracheæ.

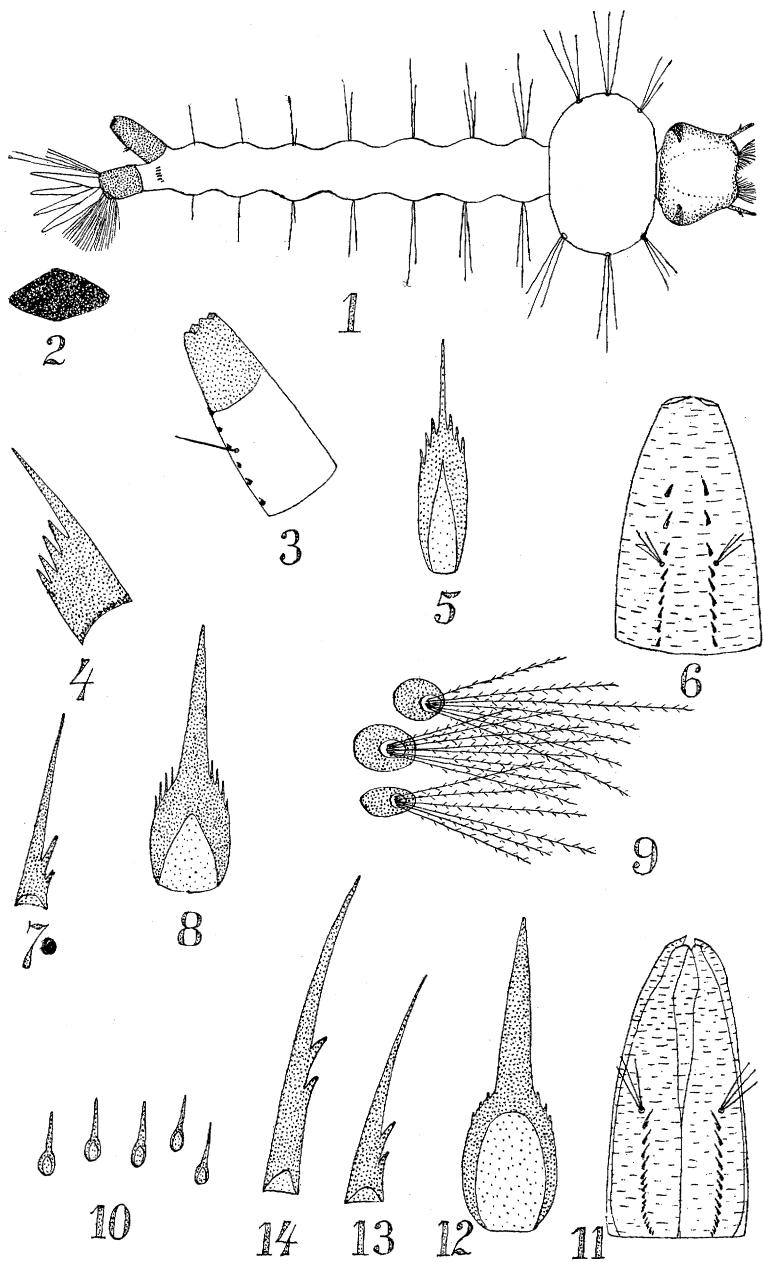
Stage III.—As in Stage II. Air tube two and a half times as long as wide, its dorsal hairs forming distinct tufts, the teeth of the pecten exceeding the tuft. Head brown, infuscated; a small tuft at the middle of the antennæ, moderate, brown. Body normal.

Stage IV.—Head brown, infuscated, the antennæ moderate, equal, brown, the small tuft at the middle. Body normal, the hair tufts heavy, with large chitinous plates (Plate IX, Fig. 9), the abdominal ones slight, diminishing posteriorly. Comb of the eighth segment of twelve large thorn-shaped teeth; air tube two and a half times as long as wide, abruptly tapered, the tuft before the middle, followed by large detached teeth of the pecten, with three small tufts below and a double row of hair tufts above. Anal segment not ringed; with distinct tufts before the barred area; anal tuft and brush normal, large. Anal processes four, moderate, not conspicuously tracheate.

Pupa.—As usual in *Culex*.

EXPLANATION OF PLATE IX.

- | | | |
|---------|------------------------------|--|
| Fig. 1. | <i>Culex punctor</i> Kirby. | Larva. |
| " 2. | <i>Culex trichurus</i> Dyar. | Egg. |
| " 3. | " " | The air tube of the first stage. |
| " 4. | " " | A pecten tooth of the air tube. |
| " 5. | " " | A spine of the lateral comb of the eighth segment. |
| " 6. | " " | Air tube of the second and third stages. |
| " 7. | " " | A spine of the air tube. |
| " 8. | " " | A spine of the lateral comb of the eighth segment, second stage. |
| " 9. | <i>Culex punctor</i> Kirby. | Thoracic hair tufts, fourth stage. |
| " 10. | " " | Lateral comb of the eighth segment. |
| " 11. | " " | Air tube, fourth stage. |
| " 12. | " " | A single spine of the lateral comb. |
| " 13. | " " | from Brit. Col. A pecten tooth of the air tube. |
| " 14. | " " | from Mass. A pecten tooth of the air tube. |



Larvæ of *Culex punctor* and *C. trichurus*.